

# SEARCH REQUEST FORM

## Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 2-8-06  
 Art Unit: 1752 Phone Number 2-1333 Serial Number: 10803,393  
 Mail Box and Bldg/Room Location: 2D60 Results Format Preferred: (circle) PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

SCIENCE

Title of Invention: P12. All Bib

**Inventors (please provide full names):**

Earliest Priority Filing Date:

**\*For Sequence Searches Only \*** Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for an oligomer compound of the

formula shown in cl. ~~15~~ #15-

(Please do not limit search)

=> d his ful

(FILE 'HOME' ENTERED AT 09:43:56 ON 10 FEB 2006)

FILE 'HCAPLUS' ENTERED AT 09:44:22 ON 10 FEB 2006

E US20040175650/PN  
L1 1 SEA ABB=ON PLU=ON US20040175650/PN  
D ALL  
SEL RN

FILE 'REGISTRY' ENTERED AT 09:45:06 ON 10 FEB 2006

L2 2 SEA ABB=ON PLU=ON (220341-25-3/BI OR 3253-39-2/BI)  
D SCAN

FILE 'LREGISTRY' ENTERED AT 09:45:38 ON 10 FEB 2006

L3 STR

FILE 'REGISTRY' ENTERED AT 11:01:27 ON 10 FEB 2006

FILE 'LREGISTRY' ENTERED AT 11:01:42 ON 10 FEB 2006

L4 STR L3

FILE 'REGISTRY' ENTERED AT 11:03:43 ON 10 FEB 2006

L5 0 SEA SSS SAM L4  
D QUE STAT

L6 0 SEA SSS FUL L4  
DIS SIA

FILE 'LREGISTRY' ENTERED AT 11:06:27 ON 10 FEB 2006

L7 STR L4

L8 STR L4

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L10 0 SEA SSS SAM L7  
D QUE STAT

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L11 STR L7

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D QUE STAT

L13 SCR 1840

L14 0 SEA SSS SAM L11 AND L13

L15 SCR 1918

L16 0 SEA SSS SAM L11 AND L13 NOT L15

L17 SCR 1841

L18 0 SEA SSS SAM L11 AND L17 NOT L15

D QUE STAT L9

L19 0 SEA SSS SAM L8 AND L17 NOT L15

L20 4 SEA SSS FUL L8 AND L17 NOT L15

D SCAN

D SAV

SAV L20 LEE393II/A

FILE 'HCAPLUS' ENTERED AT 11:18:45 ON 10 FEB 2006

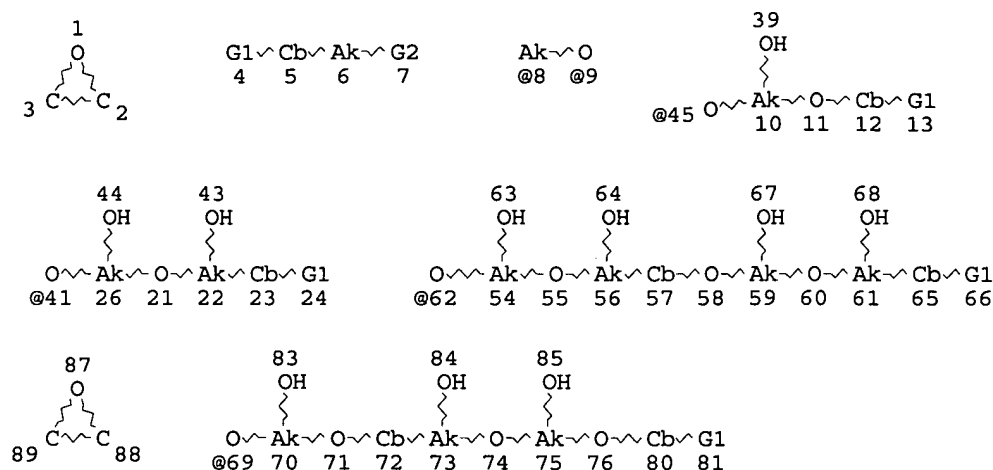
L21 10 SEA ABB=ON PLU=ON L20  
D SCAN TI  
D SCAN

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L22 0 SEA ABB=ON PLU=ON L20

FILE 'HCAPLUS' ENTERED AT 11:20:06 ON 10 FEB 2006

=> => d que stat 121  
L8 STR



VAR G1=8/9  
VAR G2=41/45/62/69  
NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
GGCAT IS UNS AT 5  
GGCAT IS UNS AT 12  
GGCAT IS UNS AT 23  
GGCAT IS UNS AT 57  
GGCAT IS UNS AT 65  
GGCAT IS UNS AT 72  
GGCAT IS UNS AT 80  
DEFAULT ECLEVEL IS LIMITED  
ECOUNT IS E6 C AT 5  
ECOUNT IS E6 C AT 12  
ECOUNT IS E6 C AT 23  
ECOUNT IS E6 C AT 57  
ECOUNT IS E6 C AT 65  
ECOUNT IS E6 C AT 72  
ECOUNT IS E6 C AT 80

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 54

STEREO ATTRIBUTES: NONE  
L15 SCR 1918  
L17 SCR 1841  
L20 4 SEA FILE=REGISTRY SSS FUL L8 AND L17 NOT L15  
L21 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L20

=> d 121 1-10 ibib abs hitstr hitind

L21 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1999:603397 HCAPLUS  
DOCUMENT NUMBER: 131:229945  
TITLE: Pneumatic run flat tire  
INVENTOR(S): Ikeda, Kazuo  
PATENT ASSIGNEE(S): Bridgestone Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF

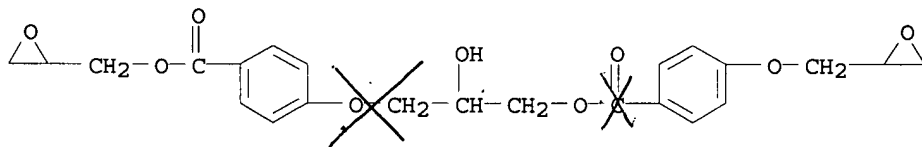
DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11254920	A2	19990921	JP 1998-57063	1998 0309

PRIORITY APPLN. INFO.: JP 1998-57063  
 1998  
 0309

AB The tire is equipped with a pair of ring-type bead cores, a carcass layer containing plural polyester cords arranged in parallel buried in the coating rubber and having both edges folded and wound around the bead cores in circles, a reinforcement rubber layer having crescent cross-cut and arranged in the inner of the carcass layer, multilayered belts arranged on the outside of the carcass layer in tire radius direction, and a pair of side wall arranged in left and right of the tread, wherein the cords are reinforcement polyesters having adhesion durability index  $\geq 130$ . Here, the adhesion durability index 100 is obtained from  $A60/A20 + 100$  ( $A20$  = adhesion strength after treating standard polyester cords with contacting rubber compns. at  $175^\circ$  for 20 min;  $A60$  = adhesion strength after treating above cords and rubbers at  $175^\circ$  for 60 min). The index of the reinforcement polyester cords are obtained from  $B60/B20$  ( $B20$ ,  $B60$  are obtained as above, using reinforcement polyester cords instead of the standard polyester cords). Thus, a tire equipped with a carcass layer of reinforcement polyethylene terephthalate (PET) cords was exemplified. The CO<sub>2</sub>H content of PET and PET fiber for the cords was 8 and 15 equiv/106 g, resp.

IT 19236-36-3  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (terminal CO<sub>2</sub>H reducing agents; pneumatic run flat tire with reinforcement polyester code carcass layer)  
 RN 19236-36-3 HCAPLUS  
 CN Benzoic acid, 4-[2-hydroxy-3-[[4-(oxiranylmethoxy)benzoyl]oxy]propoxy]-, oxiranylmethyl ester (9CI) (CA INDEX NAME)



IC ICM B60C017-06  
 ICS B60C009-00; B60C013-00; D02G003-48; D01F006-62; D01F006-92  
 CC 39-13 (Synthetic Elastomers and Natural Rubber)  
 Section cross-reference(s): 40  
 IT 1215-57-2, N,N'-Di-o-tolylcarbodiimide 7042-93-5  
 19236-36-3 36697-72-0, 2,2'-Bis(2-oxazoline)  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (terminal CO<sub>2</sub>H reducing agents; pneumatic run flat tire with reinforcement polyester code carcass layer)

L21 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1999:156808 HCAPLUS  
 DOCUMENT NUMBER: 130:253456  
 TITLE: Epoxy resin pastes for semiconductors  
 INVENTOR(S): Ito, Shingo

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11061076	A2	19990305	JP 1997-221596	1997 0818

PRIORITY APPLN. INFO.: JP 1997-221596  
 1997  
 0818

AB The pastes comprise (A) 100 parts liquid epoxy resins composed of GO[p-C<sub>6</sub>H<sub>4</sub>-CO<sub>2</sub>CH<sub>2</sub>CH(OH)CH<sub>2</sub>O]n-p-C<sub>6</sub>H<sub>4</sub>CO<sub>2</sub>G (I; G = glycidyl; n ≥ 0) and epoxy-containing reactive diluents at the weight ratio of 60:40-90:10, (B) 0.5-5 parts latent curing agents, (C) 0.5-10 parts imidazoles, and (D) inorg. fillers. A paste composition containing I 18.2, Ph glycidyl ether 9.8, dicyandiamide 0.6, 2-phenyl-4-methyl-5-hydroxymethylimidazole 1.4, and powdered Ag 70.0 parts showed viscosity 152 P, high adhesion strength under heating, less stress, and long pot life.

IT 221525-39-9DP, reaction products with Ph glycidyl ether  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP  
 (Preparation); USES (Uses)  
 (epoxy resin adhesive pastes with good heat resistance, low stress, and long pot life for semiconductors)

RN 221525-39-9 HCAPLUS

CN Guanidine, cyano-, polymer with α-[4-[(oxiranylmethoxy)carbonyl]phenyl]ω-[(oxiranylmethoxy)poly[oxy(2-hydroxy-1,3-propanediyl)oxycarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)

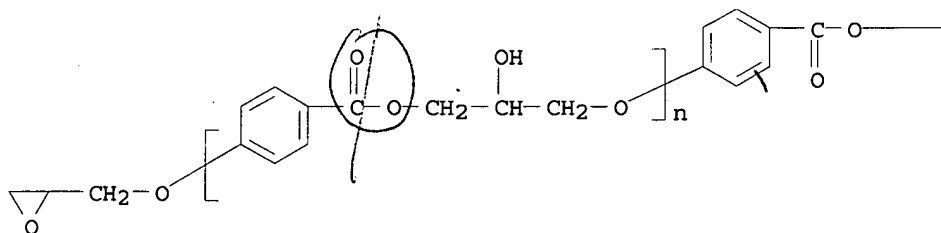
CM 1

CRN 124933-99-9

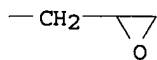
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CCI PMS

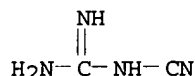
PAGE 1-A



PAGE 1-B



CM 2

CRN 461-58-5  
CMF C2 H4 N4

IC ICM C09J163-00  
ICS C08G059-40; C08L063-00; H01L021-52  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76  
IT 122-60-1DP, Glycidyl phenyl ether, reaction products with epoxy phenolic resins 221525-39-9DP, reaction products with Ph glycidyl ether  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(epoxy resin adhesive pastes with good heat resistance, low stress, and long pot life for semiconductors)

L21 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1999:156807 HCAPLUS  
DOCUMENT NUMBER: 130:253455  
TITLE: Epoxy resin pastes for semiconductors  
INVENTOR(S): Ito, Shingo  
PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11061075	A2	19990305	JP 1997-221595	1997 0818

PRIORITY APPLN. INFO.: JP 1997-221595  
1997  
0818

AB The pastes comprise (A) 100 parts liquid epoxy resins composed of GO[p-C6H4-CO2CH2CH(OH)CH2O]n-p-C6H4CO2G(I; G = glycidyl; n ≥ 0) and epoxy-containing reactive diluents at the weight ratio of 70:30-100:0, (B) 20-60 parts phenolic curing agents, (C) 0.5-5 parts latent curing agents, (D) 20-60 parts [based on 100 parts of (A) + (B) + (C)] SiR1R2R3R4 (R1 = epoxy-containing aliphatic or aromatic functional group; R2 = alkoxy; R3 = alkyl, alkoxy), (E) organic borate salts, and (F) inorg. fillers. A paste composition containing I 14.8, Ph glycidyl ether 2.5, bisphenol F 3.7, dicyandiamide 0.5, γ-glycidoxypropyltrimethoxysilane 7.4, tetraphenylphosphonium tetraphenylborate 1.2, and powdered Ag 70.0 parts showed viscosity 148 P, high adhesion strength under heating, less stress, and long pot life.

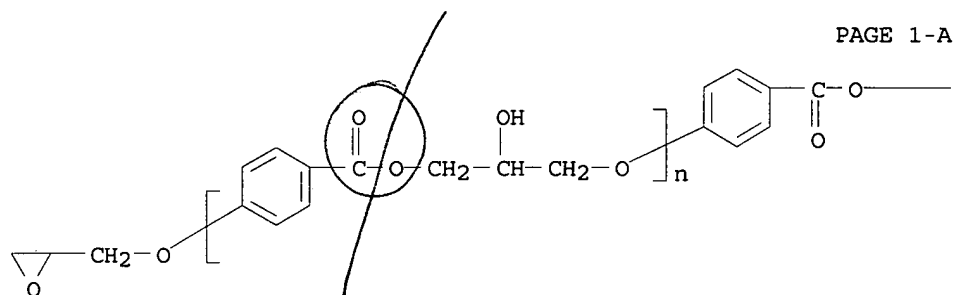
IT 124933-99-9DP, reaction products with phenol novolak, bisphenol F, dicyandiamide, Ph glycidyl ether, and glycidoxypropylmethoxysilane 221315-94-2DP, reaction products with Ph glycidyl ether

RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP  
 (Preparation); USES (Uses)

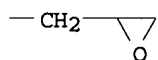
(epoxy resin adhesive pastes with good heat resistance, low  
 stress, and long pot life for semiconductors)

RN 124933-99-9 HCAPLUS

CN Poly[oxy(2-hydroxy-1,3-propanediyl)oxycarbonyl-1,4-phenylene],  
 $\alpha$ -[4-[(oxiranylmethoxy)carbonyl]phenyl] $\omega$ -  
 (oxiranylmethoxy)- (9CI) (CA INDEX NAME)



PAGE 1-B



RN 221315-94-2 HCAPLUS

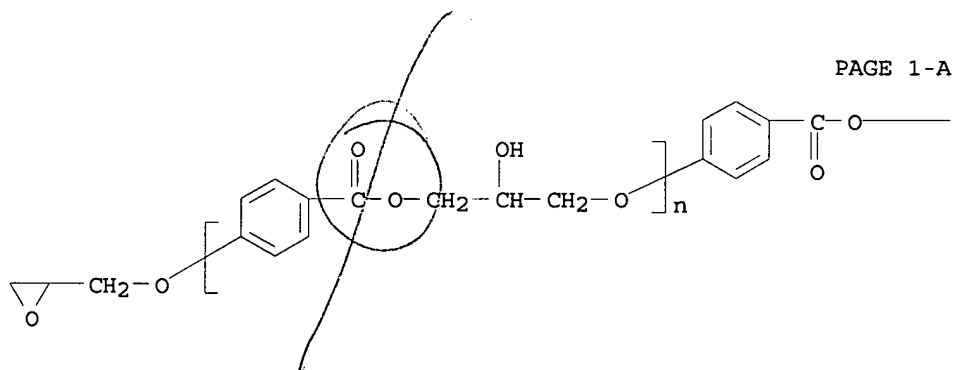
CN Guanidine, cyano-, polymer with methylenebis[phenol] and  
 $\alpha$ -[4-[(oxiranylmethoxy)carbonyl]phenyl] $\omega$ -  
 (oxiranylmethoxy)poly[oxy(2-hydroxy-1,3-propanediyl)oxycarbonyl-  
 1,4-phenylene] (9CI) (CA INDEX NAME)

CM 1

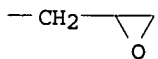
CRN 124933-99-9

CMF (C10 H10 O4) $_n$  C13 H14 O5

CCI PMS



PAGE 1-B

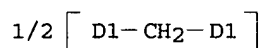


CM 2

CRN 1333-16-0  
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CCI IDS

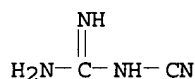


D1-OH



CM 3

CRN 461-58-5  
CMF C2 H4 N4



IC ICM C09J163-00  
ICS C08G059-22; C08L063-00; C08L083-04; H01L021-52  
CC 38-3 (Plastics Fabrication and Uses)  
IT 122-60-1DP, Phenyl glycidyl ether, reaction products with epoxy resins, bisphenol F, dicyandiamide, and glycidoxypropyltrimethoxysilane 461-58-5DP, Dicyandiamide, reaction products with epoxy resins, Ph glycidyl ether, phenol novolak, bisphenol F, and glycidoxypropylmethoxysilane 1333-16-0DP, Bisphenol F, reaction products with epoxy resins, Ph glycidyl ether, phenol novolak, dicyandiamide, and glycidoxypropylmethoxysilane **124933-99-9DP**, reaction products with phenol novolak, bisphenol F, dicyandiamide, Ph glycidyl ether, and glycidoxypropylmethoxysilane **221315-94-2DP**, reaction products with Ph glycidyl ether  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(epoxy resin adhesive pastes with good heat resistance, low stress, and long pot life for semiconductors)

L21 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1999:156806 HCAPLUS  
DOCUMENT NUMBER: 130:238551  
TITLE: Epoxy resin pastes for semiconductors  
INVENTOR(S): Ito, Shingo  
PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:



PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11061074	A2	19990305	JP 1997-221594	1997 0818

PRIORITY APPLN. INFO.:

JP 1997-221594

1997  
0818

AB The pastes comprise (A) 100 parts liquid epoxy resins composed of GO[p-C<sub>6</sub>H<sub>4</sub>-CO<sub>2</sub>CH<sub>2</sub>CH(OH)CH<sub>2</sub>O]n-p-C<sub>6</sub>H<sub>4</sub>CO<sub>2</sub>G(I; G = glycidyl; n ≥ 0) and epoxy-containing reactive diluents at the weight ratio of 50:50-90:10, (B) 10-30 parts phenolic curing agents, (C) 0.5-5 parts latent curing agents, (D) 0.1-10 parts [based on 100 parts (A) + (B) + (C)] tertiary amine (salts) curing accelerators, and (E) inorg. fillers. A paste composition containing I 13.8, Ph glycidyl ether 11.3, bisphenol F 4.0, dicyandiamide 0.8, DBU 0.2, and powdered Ag 70.0 parts showed viscosity 150 P, high adhesion strength under heating, less stress, and long pot life.

IT 221315-94-2DP, reaction products with Ph glycidyl ether  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP  
 (Preparation); USES (Uses)

(epoxy resin adhesive pastes with good heat resistance, low stress, and long pot life for semiconductors)

RN 221315-94-2 HCAPLUS

CN Guanidine, cyano-, polymer with methylenebis[phenol] and  
 α-[4-[(oxiranylmethoxy)carbonyl]phenyl]ω-  
 (oxiranylmethoxy)poly[oxy(2-hydroxy-1,3-propanediyl)oxycarbonyl-  
 1,4-phenylene] (9CI) (CA INDEX NAME)

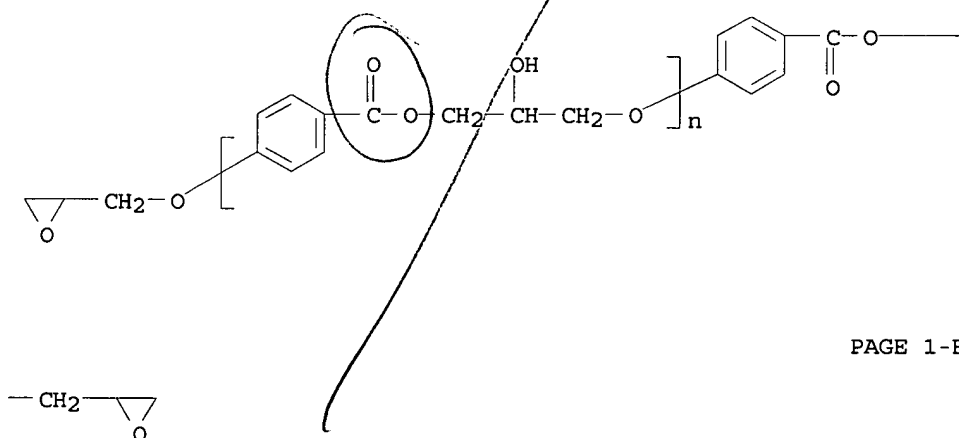
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CMF (C10 H10 O4)n C13 H14 O5

CCI PMS

PAGE 1-A



PAGE 1-B

CM 2

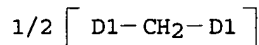
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CCI IDS



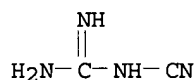
D1-OH



CM 3

CRN 461-58-5

CMF C2 H4 N4



IC ICM C09J163-00  
 ICS C08G059-22; C08G059-56; C08G059-62; C08L063-00; H01L021-52  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 76  
 IT 122-60-1DP, Glycidyl phenyl ether, reaction products with epoxy  
 phenolic resins **221315-94-2DP**, reaction products with Ph  
 glycidyl ether  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); TEM (Technical or engineered material use); PREP  
 (Preparation); USES (Uses)  
 (epoxy resin adhesive pastes with good heat resistance, low  
 stress, and long pot life for semiconductors)

L21 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:808322 HCAPLUS

DOCUMENT NUMBER: 123:316814

TITLE: Heat-resistant polyester fibers containing  
diepoxy compounds

INVENTOR(S): Uchida, Minoru; Mitsuyoshi, Takehiko

PATENT ASSIGNEE(S): Toray Industries, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

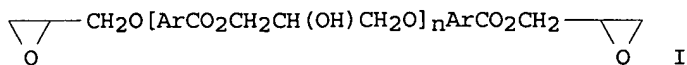
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07166419	A2	19950627	JP 1993-312063	1993

1213

PRIORITY APPLN. INFO.: JP 1993-312063

1993  
1213

GI

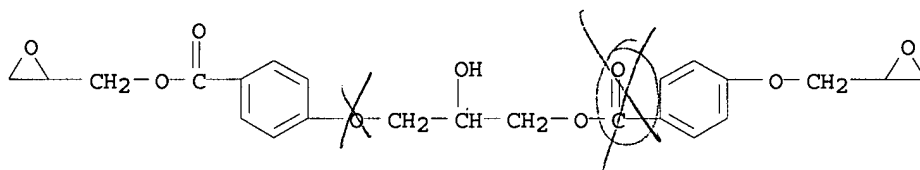


AB Title polyester fibers contain diepoxy compds. I (Ar = C6-20 aromatic group; n = 0-20). The fibers show high dimensional stability and good adhesion strength with rubbers and are useful for reinforcement of rubbers, especially tire cords. Thus, 99.98/0.02 mixture of PET and epoxy compds. [50:50 mixture of I (Ar = p-C6H4, n = 0) and I (Ar = p-C6H4, n = 1)] were extruded to give a fiber showing good heat resistance in rubber and initial adhesion strength 20.2 kg/cm.

IT 19236-36-3DP, reaction products with polyesters  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (fiber; heat-resistant polyester fibers containing diepoxy compds. for reinforcement of rubbers)

RN 19236-36-3 HCAPLUS

CN Benzoic acid, 4-[2-hydroxy-3-[[4-(oxiranylmethoxy)benzoyl]oxy]propoxy]-, oxiranylmethyl ester (9CI) (CA INDEX NAME)



IC ICM D01F006-92

ICS B29D030-38; B60C009-00; C08J005-04; D01F001-10; D01F006-62; D02G003-48

CC 40-7 (Textiles and Fibers)  
 Section cross-reference(s): 39

IT 7042-93-5DP, reaction products with polyesters  
 19236-36-3DP, reaction products with polyesters  
 25038-59-9DP, Poly(ethylene terephthalate), reaction products with diepoxy compds.  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (fiber; heat-resistant polyester fibers containing diepoxy compds. for reinforcement of rubbers)

L21 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:795651 HCAPLUS

DOCUMENT NUMBER: 123:343226

TITLE: Polyester fibers for tire cords

INVENTOR(S): Uchida, Minoru; Mitsuyoshi, Takehiko

PATENT ASSIGNEE(S): Toray Industries, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07166420	A2	19950627	JP 1993-312068	1993

PRIORITY APPLN. INFO.:

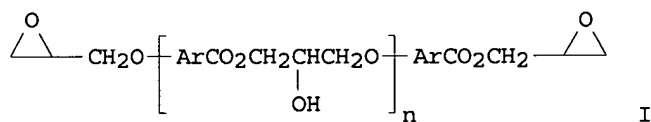
JP 1993-312068

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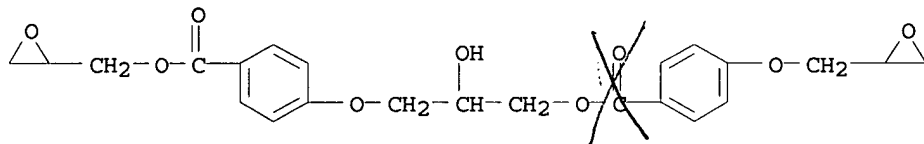
AB Title fibers, high-strength and heat-resistant and useful for rubber reinforcements, comprise I (Ar = C6-20 aromatic group; n = 0-20) and Sb (as metal) ≤10 ppm. Thus, a blend of 99.98 parts PET with terminal carboxy 17.4 equivalent/ton, diethylene glycol content 0.83%, and Sb content 2 ppm and 0.02 parts 50:50 mixture of I (Ar = p-phenylene, n = 0) and I (Ar = p-phenylene, n = 1) was spun, stretched, made into cords, and adhesive-treated with tenacity 6.3 g/denier and retention of tenacity 62.3% when imbedded in rubber and cured at 150° for 6 h.

IT 19236-36-3

RL: MOA (Modifier or additive use); USES (Uses)  
(additives to polyester fibers for improved strength and heat resistance)

RN 19236-36-3 HCAPLUS

CN Benzoic acid, 4-[2-hydroxy-3-[[4-(oxiranylmethoxy)benzoyl]oxy]propoxy]-, oxiranylmethyl ester (9CI) (CA INDEX NAME)



IC ICM D01F006-92

ICS B29D030-38; B60C009-00; C08J005-04; D01F001-10; D01F006-62;  
D02G003-48

CC 40-2 (Textiles and Fibers)

IT 7042-93-5 19236-36-3 76961-19-8

RL: MOA (Modifier or additive use); USES (Uses)  
(additives to polyester fibers for improved strength and heat resistance)

L21 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1991:248604 HCAPLUS

DOCUMENT NUMBER: 114:248604

TITLE: Thermal cycle- and hydrolysis-resistant liquid  
crystal polyester compositions

INVENTOR(S): Okamoto, Masaru; Ichikawa, Yasunori; Inoue,  
Shunei

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

JP 03002261

A2

19910108

JP 1989-136224

1989

0531

PRIORITY APPLN. INFO.:

JP 1989-136224

1989

0531

AB The title compns. comprise (A) 100 parts melt anisotropic liquid-crystalline polyesters with heat distortion temperature  $\geq 150^\circ$  and containing units p-OC<sub>6</sub>H<sub>4</sub>CO (I), OR10 [II: R<sub>1</sub> = (p-C<sub>6</sub>H<sub>4</sub>)<sub>m</sub>, 2,6-C<sub>10</sub>H<sub>6</sub>, p-C<sub>6</sub>H<sub>4</sub>Z-p-C<sub>6</sub>H<sub>4</sub>, p-C<sub>6</sub>H<sub>3</sub>Y, p-C<sub>6</sub>H<sub>2</sub>Me<sub>2</sub>-p-C<sub>6</sub>H<sub>2</sub>Me<sub>2</sub>; Y = CMe<sub>3</sub>, Ph; Z = O, CMe<sub>2</sub>; m = 1, 2], OCH<sub>2</sub>CH<sub>2</sub>O (III), and COR<sub>2</sub>CO [IV: R<sub>2</sub> = (p-C<sub>6</sub>H<sub>4</sub>)<sub>n</sub>, 2,6-C<sub>10</sub>H<sub>6</sub>, p-C<sub>6</sub>H<sub>3</sub>XO(CH<sub>2</sub>)<sub>2</sub>O-p-C<sub>6</sub>H<sub>3</sub>X; X = H, Cl; n = 1, 2], at mol. ratios of (I + II)/(I + II + III) (75-95)/100, III/(I + II + III) (5-25)/100, I/II 75/25-95/5, and IV/(I + II) 1/1, (B) 0.005-10 parts organic epoxides, (C) 0.005-10 parts carbodiimides, and (D) 0-200 parts fillers. Thus, p-hydroxybenzoic acid 466, 4,4'-dihydrobiphenyl 84, Ac<sub>2</sub>O 480, terephthalic acid 75, and PET 130 parts were heated 5 h at 100-250°, 1.5 h at 250-300°, and 3.75 h at 300° and 0.3 mmHg to give a polyester (V) with liquid crystal formation temperature 272° and heat distortion temperature 208°. Then, V 100, bisphenol A diglycidyl ether (VI) 1.0, and DCC 0.1 part were dry blended, melt kneaded, pelletized, and injection molded to give a test piece showing tensile strength 1420, 1300, and 1260 kg/cm<sup>2</sup> initially, after 60 days in H<sub>2</sub>O at 80°, and after 150 thermal cycles from -40° to 150°, vs. 1350, 1250, and 920, resp., without VI.

IT 124933-99-9

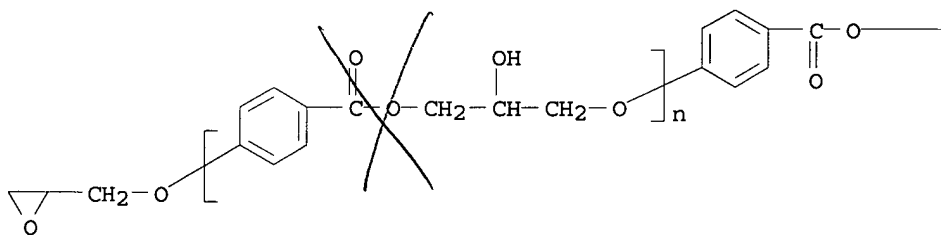
RL: USES (Uses)

(thermotropic polyesters containing, with good thermal cycle and hydrolysis resistance)

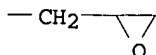
RN 124933-99-9 HCAPLUS

CN Poly[oxy(2-hydroxy-1,3-propanediyl)oxycarbonyl-1,4-phenylene],  $\alpha$ -[4-[(oxiranylmethoxy)carbonyl]phenyl]  $\omega$ -(oxiranylmethoxy) - (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM C08L067-02

ICS C08K005-15; C08K005-29; C08L063-00; C08L067-02

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 75

IT 538-75-0, DCC 1215-57-2 1675-54-3 5493-45-8 124900-42-1

**124933-99-9**

RL: USES (Uses)

(thermotropic polyesters containing, with good thermal cycle and hydrolysis resistance)

L21 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1990:57602 HCAPLUS

DOCUMENT NUMBER: 112:57602

TITLE: Aromatic polyester compositions with good flow and no flash formation during molding

INVENTOR(S): Karasawa, Hiroo; Okita, Kyomi; Yonetani, Kiichi

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01174557	A2	19890711	JP 1987-335024	1987 1228
JP 05063505	B4	19930910		
PRIORITY APPLN. INFO.:			JP 1987-335024	1987 1228

AB Title compns., giving glossy moldings which are resistant to hydrolysis and discoloration during heating and are useful as molded parts for automobiles, elec. apparatus, etc., comprise aromatic polyesters containing 0.005-10% epoxy compound R[OZCO<sub>2</sub>CH<sub>2</sub>CH(OH)CH<sub>2</sub>]nOZCO<sub>2</sub>R (R = glycidyl; Z = divalent C<sub>6</sub>-20 aromatic or alicyclic residue; n = 0-20) and 0.005-5% carbodiimide derivative. A mixture of poly(butylene terephthalate) 100, glycidyl 4-glycidyl oxybenzoate 0.5, and N,N'-di(o-tolyl)carbodiimide 0.5 part was kneaded at 250°, pelletized, and dried. The pellets showed min. molding pressure 23 kg/cm<sup>2</sup>-gauge and no flash formation during molding. The moldings had tensile strength (kg/cm<sup>2</sup>) 575 initially and 500 after 15 days in H<sub>2</sub>O at 100° and exhibited good color stability, smoothness, and luster during 300 h at 205°.

IT **124933-99-9**

RL: USES (Uses)

(poly(butylene terephthalate) containing, for moldability and stability)

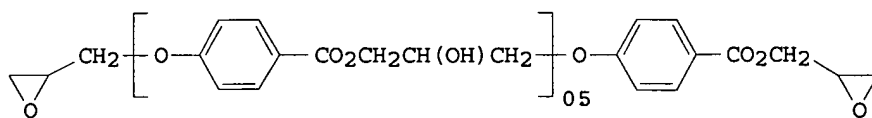
RN 124933-99-9 HCAPLUS

CN Poly[oxy(2-hydroxy-1,3-propanediyl)oxycarbonyl-1,4-phenylene],  
 $\alpha$ -[4-[(oxiranylmethoxy)carbonyl]phenyl] $\omega$ -  
 (oxiranylmethoxy)-(9CI) (CA INDEX NAME)

O=C1C(=O)OC(C1)COC(=O)c2ccccc2C(=O)OCCOC3C(=O)C(=O)OC3COC4C(=O)C(=O)OC4COC5C(=O)C(=O)OC5COC6C(=O)C(=O)OC6COC7C(=O)C(=O)OC7COC8C(=O)C(=O)OC8COC9C(=O)C(=O)OC9COC10C(=O)C(=O)OC10COC11C(=O)C(=O)OC11COC12C(=O)C(=O)OC12COC13C(=O)C(=O)OC13COC14C(=O)C(=O)OC14COC15C(=O)C(=O)OC15COC16C(=O)C(=O)OC16COC17C(=O)C(=O)OC17COC18C(=O)C(=O)OC18COC19C(=O)C(=O)OC19COC20C(=O)C(=O)OC20COC21C(=O)C(=O)OC21COC22C(=O)C(=O)OC22COC23C(=O)C(=O)OC23COC24C(=O)C(=O)OC24COC25C(=O)C(=O)OC25COC26C(=O)C(=O)OC26COC27C(=O)C(=O)OC27COC28C(=O)C(=O)OC28COC29C(=O)C(=O)OC29COC30C(=O)C(=O)OC30COC31C(=O)C(=O)OC31COC32C(=O)C(=O)OC32COC33C(=O)C(=O)OC33COC34C(=O)C(=O)OC34COC35C(=O)C(=O)OC35COC36C(=O)C(=O)OC36COC37C(=O)C(=O)OC37COC38C(=O)C(=O)OC38COC39C(=O)C(=O)OC39COC40C(=O)C(=O)OC40COC41C(=O)C(=O)OC41COC42C(=O)C(=O)OC42COC43C(=O)C(=O)OC43COC44C(=O)C(=O)OC44COC45C(=O)C(=O)OC45COC46C(=O)C(=O)OC46COC47C(=O)C(=O)OC47COC48C(=O)C(=O)OC48COC49C(=O)C(=O)OC49COC50C(=O)C(=O)OC50COC51C(=O)C(=O)OC51COC52C(=O)C(=O)OC52COC53C(=O)C(=O)OC53COC54C(=O)C(=O)OC54COC55C(=O)C(=O)OC55COC56C(=O)C(=O)OC56COC57C(=O)C(=O)OC57COC58C(=O)C(=O)OC58COC59C(=O)C(=O)OC59COC60C(=O)C(=O)OC60COC61C(=O)C(=O)OC61COC62C(=O)C(=O)OC62COC63C(=O)C(=O)OC63COC64C(=O)C(=O)OC64COC65C(=O)C(=O)OC65COC66C(=O)C(=O)OC66COC67C(=O)C(=O)OC67COC68C(=O)C(=O)OC68COC69C(=O)C(=O)OC69COC70C(=O)C(=O)OC70COC71C(=O)C(=O)OC71COC72C(=O)C(=O)OC72COC73C(=O)C(=O)OC73COC74C(=O)C(=O)OC74COC75C(=O)C(=O)OC75COC76C(=O)C(=O)OC76COC77C(=O)C(=O)OC77COC78C(=O)C(=O)OC78COC79C(=O)C(=O)OC79COC80C(=O)C(=O)OC80COC81C(=O)C(=O)OC81COC82C(=O)C(=O)OC82COC83C(=O)C(=O)OC83COC84C(=O)C(=O)OC84COC85C(=O)C(=O)OC85COC86C(=O)C(=O)OC86COC87C(=O)C(=O)OC87COC88C(=O)C(=O)OC88COC89C(=O)C(=O)OC89COC90C(=O)C(=O)OC90COC91C(=O)C(=O)OC91COC92C(=O)C(=O)OC92COC93C(=O)C(=O)OC93COC94C(=O)C(=O)OC94COC95C(=O)C(=O)OC95COC96C(=O)C(=O)OC96COC97C(=O)C(=O)OC97COC98C(=O)C(=O)OC98COC99C(=O)C(=O)OC99COC100C(=O)C(=O)OC100COC101C(=O)C(=O)OC101COC102C(=O)C(=O)OC102COC103C(=O)C(=O)OC103COC104C(=O)C(=O)OC104COC105C(=O)C(=O)OC105COC106C(=O)C(=O)OC106COC107C(=O)C(=O)OC107COC108C(=O)C(=O)OC108COC109C(=O)C(=O)OC109COC110C(=O)C(=O)OC110COC111C(=O)C(=O)OC111COC112C(=O)C(=O)OC112COC113C(=O)C(=O)OC113COC114C(=O)C(=O)OC114COC115C(=O)C(=O)OC115COC116C(=O)C(=O)OC116COC117C(=O)C(=O)OC117COC118C(=O)C(=O)OC118COC119C(=O)C(=O)OC119COC120C(=O)C(=O)OC120COC121C(=O)C(=O)OC121COC122C(=O)C(=O)OC122COC123C(=O)C(=O)OC123COC124C(=O)C(=O)OC124COC125C(=O)C(=O)OC125COC126C(=O)C(=O)OC126COC127C(=O)C(=O)OC127COC128C(=O)C(=O)OC128COC129C(=O)C(=O)OC129COC130C(=O)C(=O)OC130COC131C(=O)C(=O)OC131COC132C(=O)C(=O)OC132COC133C(=O)C(=O)OC133COC134C(=O)C(=O)OC134COC135C(=O)C(=O)OC135COC136C(=O)C(=O)OC136COC137C(=O)C(=O)OC137COC138C(=O)C(=O)OC138COC139C(=O)C(=O)OC139COC140C(=O)C(=O)OC140COC141C(=O)C(=O)OC141COC142C(=O)C(=O)OC142COC143C(=O)C(=O)OC143COC144C(=O)C(=O)OC144COC145C(=O)C(=O)OC145COC146C(=O)C(=O)OC146COC147C(=O)C(=O)OC147COC148C(=O)C(=O)OC148COC149C(=O)C(=O)OC149COC150C(=O)C(=O)OC150COC151C(=O)C(=O)OC151COC152C(=O)C(=O)OC152COC153C(=O)C(=O)OC153COC154C(=O)C(=O)OC154COC155C(=O)C(=O)OC155COC156C(=O)C(=O)OC156COC157C(=O)C(=O)OC157COC158C(=O)C(=O)OC158COC159C(=O)C(=O)OC159COC160C(=O)C(=O)OC160COC161C(=O)C(=O)OC161COC162C(=O)C(=O)OC162COC163C(=O)C(=O)OC163COC164C(=O)C(=O)OC164COC165C(=O)C(=O)OC165COC166C(=O)C(=O)OC166COC167C(=O)C(=O)OC167COC168C(=O)C(=O)OC168COC169C(=O)C(=O)OC169COC170C(=O)C(=O)OC170COC171C(=O)C(=O)OC171COC172C(=O)C(=O)OC172COC173C(=O)C(=O)OC173COC174C(=O)C(=O)OC174COC175C(=O)C(=O)OC175COC176C(=O)C(=O)OC176COC177C(=O)C(=O)OC177COC178C(=O)C(=O)OC178COC179C(=O)C(=O)OC179COC180C(=O)C(=O)OC180COC181C(=O)C(=O)OC181COC182C(=O)C(=O)OC182COC183C(=O)C(=O)OC183COC184C(=O)C(=O)OC184COC185C(=O)C(=O)OC185COC186C(=O)C(=O)OC186COC187C(=O)C(=O)OC187COC188C(=O)C(=O)OC188COC189C(=O)C(=O)OC189COC190C(=O)C(=O)OC190COC191C(=O)C(=O)OC191COC192C(=O)C(=O)OC192COC193C(=O)C(=O)OC193COC194C(=O)C(=O)OC194COC195C(=O)C(=O)OC195COC196C(=O)C(=O)OC196COC197C(=O)C(=O)OC197COC198C(=O)C(=O)OC198COC199C(=O)C(=O)OC199COC200C(=O)C(=O)OC200COC201C(=O)C(=O)OC201COC202C(=O)C(=O)OC202COC203C(=O)C(=O)OC203COC204C(=O)C(=O)OC204COC205C(=O)C(=O)OC205COC206C(=O)C(=O)OC206COC207C(=O)C(=O)OC207COC208C(=O)C(=O)OC208COC209C(=O)C(=O)OC209COC210C(=O)C(=O)OC210COC211C(=O)C(=O)OC211COC212C(=O)C(=O)OC212COC213C(=O)C(=O)OC213COC214C(=O)C(=O)OC214COC215C(=O)C(=O)OC215COC216C(=O)C(=O)OC216COC217C(=O)C(=O)OC217COC218C(=O)C(=O)OC218COC219C(=O)C(=O)OC219COC220C(=O)C(=O)OC220COC221C(=O)C(=O)OC221COC222C(=O)C(=O)OC222COC223C(=O)C(=O)OC223COC224C(=O)C(=O)OC224COC225C(=O)C(=O)OC225COC226C(=O)C(=O)OC226COC227C(=O)C(=O)OC22
$$-\text{CH}_2-\text{C}_3\text{H}_5$$

L21 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1990:57601 HCAPLUS  
DOCUMENT NUMBER: 112:57601  
TITLE: Preparation of aromatic polyester compositions  
with excellent thermal shock and hydrolysis  
resistance and mechanical properties  
INVENTOR(S): Karasawa, Hiroo; Okita, Kyomi; Yonetani,  
Kiichi  
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

GI



I

AB Title compns., useful for molded machinery and automobile parts, are prepared by melt mixing aromatic polyesters 100, inorg. fillers 1-120, and epoxides 0.01-10 parts, followed by melt mixing with 1-70 parts ethylene copolymer grafted with 0.01-10% unsatd. carboxylic acid or derivative Poly(butylene terephthalate) 75, glass fibers (length 3 mm) 15, and diepoxide I 1 part were kneaded at 250° and pelletized. The pellets (91 parts) were dried, mixed with 10 parts glycidyl methacrylate (1.4%)-grafted 72:28 ethylene-propene copolymer, kneaded at 250°, pelletized, dried, and used to prepare injection moldings having Izod impact strength 19.0 kg/cm<sup>2</sup> (1/8") and tensile strength (kg/cm<sup>2</sup>) 810 initially, 765 after 15 days in boiling H<sub>2</sub>O, and 695 after 150 cycles of 2 h at 150° and 2 h at -40°, vs. 12.3, 760, 350, and 325, resp., without I.

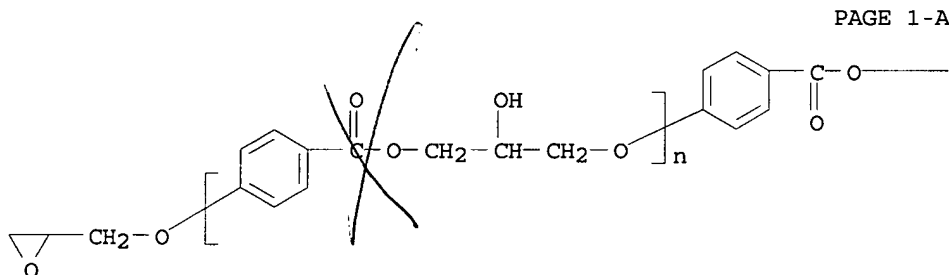
IT 124933-99-9

RL: USES (Uses)

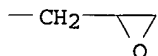
(poly(butylene terephthalate) containing, hydrolysis- and thermal shock-resistant)

RN 124933-99-9 HCAPLUS

CN Poly[oxy(2-hydroxy-1,3-propanediyl)oxycarbonyl-1,4-phenylene], α-[4-[(oxiranylmethoxy)carbonyl]phenyl]ω-(oxiranylmethoxy)- (9CI) (CA INDEX NAME)



PAGE 1-A



PAGE 1-B

IC ICM C08L067-00

ICS C08L067-00

ICA C08L003-00; C08L005-04

ICI C08L067-00, C08L051-06

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 38

IT 1675-54-3 7195-44-0 41171-14-6, Ethyl acrylate-ethylene-maleic anhydride copolymer 60435-13-4, Ethylene-glycidyl methacrylate-propylene copolymer 124933-99-9

RL: USES (Uses)

(poly(butylene terephthalate) containing, hydrolysis- and thermal



shock-resistant)

L21 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1968:402750 HCAPLUS

DOCUMENT NUMBER: 69:2750

TITLE: Glycidyl esters of aromatic acids

AUTHOR(S): Tanaka, Yoshio; Kakiuchi, Hiroshi

CORPORATE SOURCE: Yokohama Nat. Univ., Yokohama, Japan

SOURCE: J. Macromol. Sci., Part A. (1968), 1(8),

1469-85

CODEN: JMSCBA

DOCUMENT TYPE: Journal

LANGUAGE: English

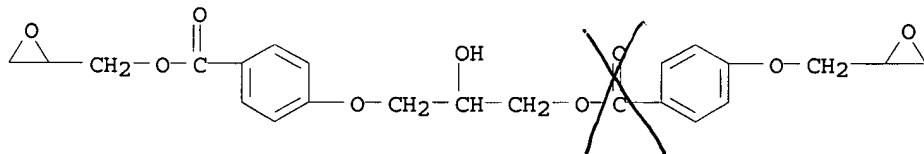
AB The reaction of substituted benzoic acids, dicarboxylic acids such as phthalic, terephthalic, and isophthalic acids, and the Na or K salts of these acids with equimolar or excess epichlorohydrin in the presence of benzyltrimethylammonium chloride was studied using various solvents such as toluene, dioxane, monochlorobenzene, and tetrachloroethylene. Use of the free carboxylic acids gave only fair to low yields of glycidyl esters, while Na or K salts of the carboxylic acids gave excellent yields of materials of high oxirane content. The epoxidn. of chlorohydrin esters of these acids by the dehydrochlorination was also studied using various dehydrochlorinating reagents such as NaOH, KOH, Na<sub>2</sub>CO<sub>3</sub>, and NaAlO<sub>2</sub> in such solvents as H<sub>2</sub>O, CH<sub>2</sub>Cl<sub>2</sub>, dioxane, and monochlorobenzene at various temps. Reaction time, reaction temperature, and water content influenced the yield of glycidyl esters. The reaction path involves nucleophilic attack upon the terminal position of the epoxide or epichlorohydrin. The resulting alkoxide then reacts further to give either a glycidyl ester or a Cl- -containing by-product, the predominant course depending upon reaction conditions. 29 references.

IT 19236-36-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 19236-36-3 HCAPLUS

CN Benzoic acid, 4-[2-hydroxy-3-[[4-(oxiranylmethoxy)benzoyl]oxy]propoxy]-, oxiranylmethyl ester (9CI) (CA INDEX NAME)



CC 27 (Heterocyclic Compounds (One Hetero Atom))

IT 556-52-5DP, 1-Propanol, 2,3-epoxy-, glycidyl esters of aromatic acids 3477-94-9P 3477-95-0P 3478-19-1P 7195-45-1P

13443-29-3P 17002-94-7P 17002-95-8P 19236-34-1P

19236-36-3P 19278-16-1P 19278-17-2P 19278-62-7P

19278-63-8P 19278-65-0P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

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